

This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

1                    1.        (Previously Amended) A method of manufacturing a trench field effect  
2 transistor on a substrate having a first conductivity type, the method comprising the steps of:  
3                    forming a first trench extending into the substrate;  
4                    lining the first trench with dielectric material;  
5                    substantially filling the first trench with conductive material to form a gate  
6 electrode of the field effect transistor;  
7                    forming a body region having a second conductivity type in the substrate;  
8                    after substantially filling the first trench with conductive material, forming a  
9 source region having the first conductivity type inside the body region and adjacent to the first  
10 trench;  
11                   forming a second trench adjacent to said source region, the second trench defined  
12 by sidewalls extending into the body region and a bottom, which terminates below the source  
13 region and in contact with the body region; and  
14                   filling the second trench with high conductivity material for making contact to the  
15 body region.

1                    2.        (Original) The method of claim 1 wherein the step of filling the second  
2 trench with high conductivity material for making contact to the body region also makes contact  
3 to the source region.

1                    3.        (Original) The method of claim 2 wherein the step of filling the second  
2 trench with high conductivity material comprises a self-aligned masking step for making contact  
3 with both the body region and the source region.

1                    4-5.    (Previously canceled)

1                   6.       (Original) The method of claim 2 further comprising a step of forming a  
2 thin layer of barrier metal between the high conductivity material and the body region.

1                   7.       (Original) The method of claim 6 wherein the high conductivity material  
2 comprises aluminum and the thin layer of barrier metal comprises titanium.

1                   8.       (Original) The method of claim 2 wherein the step of forming the second  
2 trench comprises a step of etching silicon through the source and body regions.

1                   9-11. (Previously Canceled)

1                   12.       (Original) The method of claim 8 wherein the step of etching etches the  
2 silicon at an angle resulting in a slanted edge along the etched side of the source region.

1                   13.       (Previously Amended) A process for manufacturing a trench field effect  
2 transistor comprising the steps of:  
3                   etching a first trench in a substrate having a first conductivity type;  
4                   lining the first trench with a layer of dielectric material;  
5                   substantially filling the first trench with polysilicon;  
6                   implanting impurities of a second conductivity type into the substrate to form a  
7 body region having the second conductivity type over the substrate;  
8                   after substantially filling the first trench with polysilicon, implanting impurities of  
9 the first conductivity type inside the body region to form a source region adjacent to the first  
10 trench;  
11                  etching a second trench through the source region and into the body region, the  
12 second trench defined by sidewalls and a bottom, which terminates in contact with the body  
13 region; and  
14                  filling the second trench with metal making contact with both the source region  
15 and the body region.

1                   14.    (Original) The process of claim 13 further comprising a step of implanting  
2   impurities of the second conductivity type into the body region under the second trench before  
3   the step of filling the second trench with metal.

1                   15.    (Original) The process of claim 13 wherein the step of etching the second  
2   trench etches the second trench to a shallower depth than the first trench.

1                   16-17. (Previously Canceled)

1                   18.    (Previously Added) The method of claim 1, wherein the first trench is  
2   substantially completely filled with conductive material.

1                   19.    (Previously Added) The method of claim 1, wherein after filling the first  
2   trench with conductive material, the conductive material does not extend over a substantial  
3   portion of the substrate surface peripheral to the first trench.

1                   20.    (Previously Added) The method of claim 13, wherein the first trench is  
2   substantially completely filled with polysilicon.

1                   21.    (Previously Added) The method of claim 13, wherein after filling the first  
2   trench with polysilicon, the polysilicon does not extend over a substantial portion of the substrate  
3   surface peripheral to the first trench.